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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/602,061

06/24/2003

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02/10/2006

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EXAMINER

POMPEY, RON EVERETT

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/602,061
Filing Date: June 24, 2003
Appellant(s): AHMED ET AL.

MAILED

FEB 1 2006

GROUP 2800

Mr. Glenn Snyder
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 3, 2005 appealing from the Office action mailed January 12, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,689,650

Gambino et al.

2-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-15 and 21-29 are rejected under 35 U.S.C. 103(a) as being obvious over Mathew et al. (US-PGPub. 2003/0,151,077) in view of Gambino et al. (US 6,689,650).

3. Mathew discloses the limitations of:

forming an insulating layer on a substrate;

forming a fin structure (24, fig. 2) on the insulating layer, the fin structure

including a first side surface, a second side surface, and a top surface;

forming source and drain regions at ends of the fin structure (52 and 54, fig. 9);

depositing a gate material (28, fig. 3) over the fin structure, the gate material surrounding the top surface and the first and second side surfaces;

etching the gate material to form a first gate electrode and a second gate electrode (46 and 48, fig. 9) on opposite sides of the fin; and

planarizing the deposited gate material proximate to the fin (50, fig. 8) (column 2, paragraph [0016] – column 4, paragraph [0024]).

4. Mathew does not disclose the claimed limitation(s) of:

annealing the semiconductor device to activate the source and drain regions;
and the thickness of the gate dielectric layer or gate material.

However,

a. Gambino discloses the above claimed limitations regarding:

activating the source/drain in column(s) 6, line(s) 63 - column(s) 7, line(s) 4

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Gambino with Mathew, because the annealing activates the source/drain regions of the device. Also, It would have been obvious to one of ordinary skill in the art at the time of the invention to form the gate dielectric or gate material to the thickness range claimed, to form a working semiconductor device, since it has been held that where the general conditions of a claim are disclosed in prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

(10) Response to Argument

The Appellants' argue that the examiner is using impermissible hindsight due to the fact that Mathew is silent with regard to the thickness of fin structure. This point is wrong due to the fact that it is inherent that the fin structure has a thickness; therefore a general condition of the fin structure thickness is established. The courts have held that finding the optimum or working ranges of the fin structure thickness involves only routine skill in the art, to form a working device, and therefore adds no patentable weight to the claims.

Next, the appellants argues that Mathew does not disclose fin structure 24 and gate material 28, formed over the fin, having a thickness ranging from 300Å to about 1500Å, as required by claims 11, 12, 14, 21, 26, 28 and 29; dielectric layer 20 and 22, over the top surface of the fin structure, having a thickness ranging from 150Å to about 600Å, as required by claims 13 and 23-24; gate dielectric 26 layer, on first and second side surface of the fin structure, having a thickness ranging from 10Å to about 50Å, as required by claims 15, 25-26, 28 and 29.

Which leads to the appellants states that they disagree with the use of the *In re Aller* case law, for the rejection of claims 11-15, 21, 23-26 and 28-29, to overcome the deficiencies in Mathew toward the thickness ranges claimed for the fin structure, gate material, dielectric materials over the top of the fin structure and gate dielectric on the sides of the fin structure. Appellants argument is that *In re Aller* is not on point since Mathew does not disclose any values for any of the thickness ranges discussed above. However, the examiner disagrees with this argument, because, the fin structure, gate material, dielectric materials over the top of the fin structure and gate dielectric on the sides of the fin structure all has an inherent thickness. Therefore that argument is not valid.

In addition, the appellants directed the Examiner to paragraph 40 of appellant's specification where, the appellant's argued, it is shown that it is the specific claimed thickness ranges which enable the method of claim 11 to achieve particular semiconductor device manufacturing advantages over the Prior Art.

However, the Examiner must disagree. The cited paragraph 40 reads:" [0040] Thus, in accordance with the present invention, a double-gate FinFET device is formed with two separate gates in the channel region of the device. Advantageously, the resulting structure exhibits good short channel behavior. In addition, the present invention provides increased flexibility and can be easily integrated into conventional processing." This paragraph, at best, simply states that any double-gate FinFET device with two separate gates formed in the channel region (such as the one patented by MATTHEW) would exhibit the argued advantages (e.g. good short channel behavior), and is silent as to the claimed thicknesses being the critical feature behind such advantages. While the cited paragraph 40 is clearly silent as to the criticality of the claimed thickness ranges, the appellant's admit (see page 10, paragraph 1 of Appeal Brief) to the fact of the non-criticality of the argued ranges. Paragraph 1 read: "Although Appellants did not specifically state, for example, that the claimed thicknesses allow the invention to achieve particular benefits/results, it should be understood that the claimed invention, including the claimed features with respect to the thickness of the fin structure and gate material, allow the invention to achieve the particular results."

Also, Appellants argue, for the rejection of claims 11, 22 and 27, that the alleged motivation for combining Gambino with Mathew is merely a conclusory statement providing an alleged benefit of the combination. However, in order to satisfy the motivational component of 35 U.S.C. §103 an explanation of why one having ordinary skill in the art would be motivated to modify the two references is required. The benefit, to activate the source and drain (see Gambino column 7, line 2), given is the reason

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why one of ordinary skill in the art would be motivated to combine the references and because appellants do not disagree that the given benefit will occur the motivation to combine is proper.

For the above reasons, it is believed that the rejections should be sustained.

(11) Related Proceeding(s) Appendix


No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Respectfully submitted,


Ron Pompey

Conferees:


Mike Lebentritt


Andrew Hirshfeld